



# **The Sustainability of South African Current Account Deficits**

Peter Searle and Albert Touna Mama

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# The Sustainability of South African Current Account Deficits<sup>\*</sup>

Peter Searle

and

Albert Touna Mama

University of Cape Town

University of Cape Town

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## Abstract

Deficits in the South African current account since 2003 have been met with growing concern by economists. As these deficits reached unprecedented levels, questions about the sustainability of the country's external position have begun to arise. This paper tests the sustainability of South Africa's current account deficits via a test of the country's intertemporal budget constraint. Following a similar methodology to Husted (1992) in testing for the sustainability of U.S. current account deficits and Wu, Fountas and Chen (1996) for U.S. and Canadian deficits, this paper employs the Engle and Granger (1987) ADF test for cointegration. An initial finding of an unsustainable current account position is reversed once structural breaks at 1994:1 and 2003:2 are controlled for in the cointegration equation. This investigation therefore concludes that South African current account deficit is sustainable.

**JEL Codes:** F30

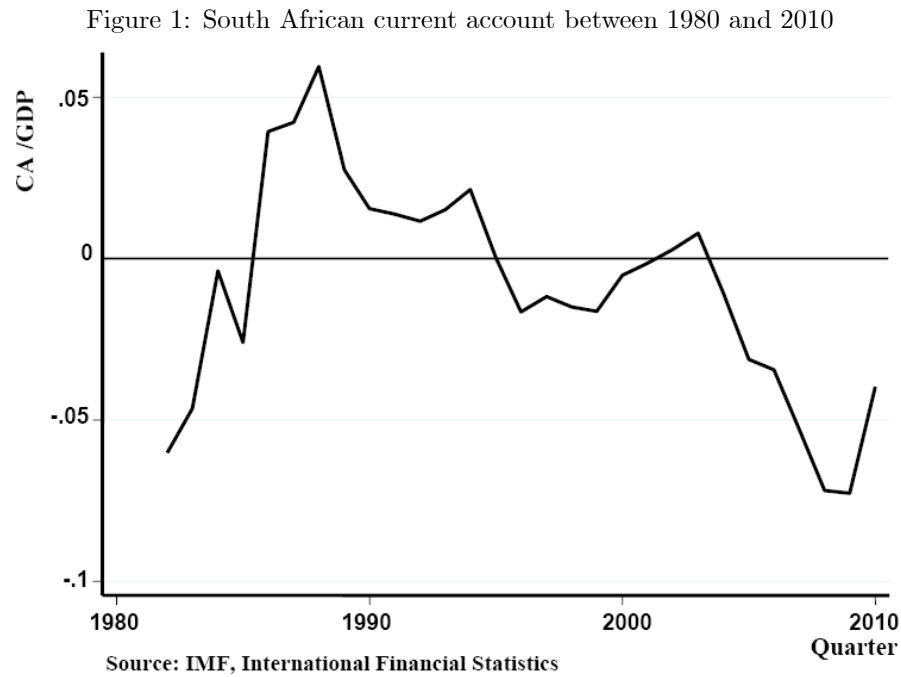
**Key Words:** Deficit sustainability; Cointegration; Structural breaks; Capital flows.

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<sup>\*</sup>University of Cape Town Email: albert.tounamama@uct.ac.za; Touna Mama thanks the University of Cape Town Research Center (URC) for financial support through the Emerging Researcher grant, as well as Economic Research Southern Africa (ERSA).

# 1 Introduction

Since its transition to democracy in 1994, South Africa has registered persistent deficits in its current account balance, with the exception of 2001 and 2002, when small surpluses were recorded. Prior to 2001, deficits were relatively small and of little concern to policy makers. Between 2003 and 2009, however, current account deficits grew to unprecedented levels, with 2007 bringing the largest deficit in this interval, of 7.2% of GDP. The first quarter of 2009 brought a deficit of 6.7% of GDP with an average deficit of 4% achieved for the year as a whole. From the more muted 2009 position, deficits of 4.9%, 5.3% and 5.8% are expected for 2010, 2011 and 2012 respectively.<sup>1</sup> It is of little wonder that questions regarding the sustainability of such positions have been raised.



From *Figure 1* one can observe that, following the surpluses of the late 1980s and early 1990s – due largely to sizeable trade surpluses and departing foreign capital – the current account slipped into a deficit in 1994. The rapid growth and size of this deficit has also fuelled the public debate. These all have significant implications for the sustainability of the current account position. From an historical perspective, one can trace the sources of these deficits to two clear culprits – the important role that foreign capital has played in financing South Africa’s investment, and the trade balance.

<sup>1</sup>National Treasury (2010).

Decomposing South Africa's current account reveals that, following the abandonment of apartheid, foreign capital flowed back into the country with renewed vigour. This was not only as a result of the country regaining access to international capital markets but also due to the country establishing itself as a popular destination for foreign investment, as Africa's economic powerhouse.<sup>2</sup> Although the 1990s saw promising inflows in this regard, the years since the surpluses of 2001 and 2002 have brought arguably unsustainable levels of foreign capital into the country. Whether the country is (or will remain) in a position to pay this back with the promise of higher future output is of central importance to its future well-being.

Figure 2: South African trade balance between 1980 and 2009

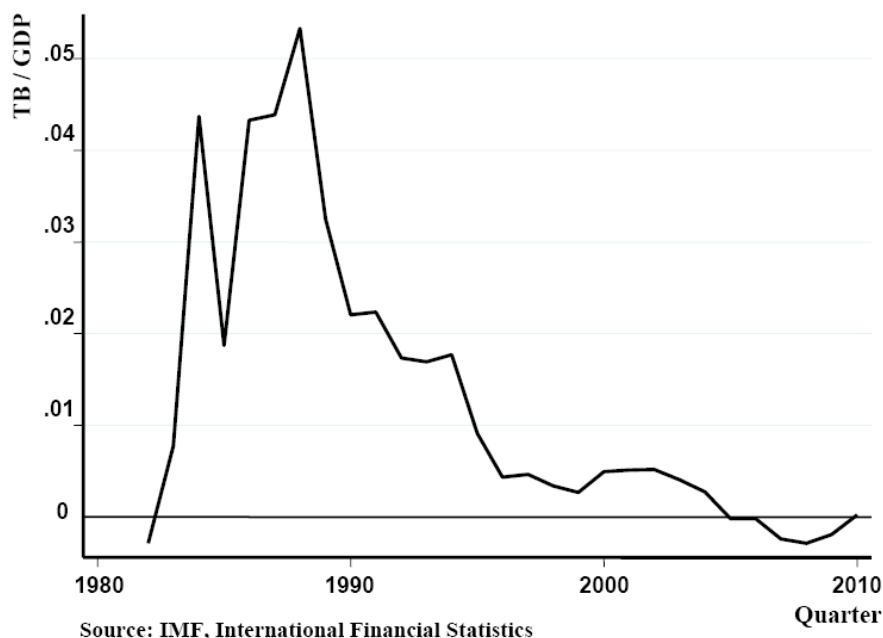


Figure 3:

As far as the trade balance is concerned, *Figure 2* shows the strong trade position of the 1990s. This partially offset the effect of capital inflows on the current account balance during these years.<sup>3</sup> The year 2004, however, saw the trade balance descend into a deficit. Smit (2007) argues that this was associated with strong growth in domestic demand, poor export performance and a protracted appreciation of the

<sup>2</sup>Draper and Freytag (2008).

<sup>3</sup>This appears to be the most likely reason for the more moderate current account deficits during these years, compared with those of 2003 onwards.

currency beginning in 2003. The results was noteworthy growth in the current account deficit as the effects of growing capital inflows were no longer offset by trade surpluses, but rather became important in producing current account deficits whose sustainability became a concern.

Similar to any household, a nation too faces a budget constraint. In the short-run, current account deficits may be run to finance heightened levels of consumption and investment. In the long-run, however, a country's external behaviour must be consistent with intertemporal balance if it is to not default on its debt.<sup>4</sup> This paper tests the sustainability of South Africa's current account deficits by means of a test of the country's intertemporal budget constraint (IBC) in the context of a cointegration analysis. To date, no such investigation of intertemporal balance has been done for South Africa. This paper therefore aims to fill this void in the literature. Prior to any such investigation, a brief examination of the background of the country's current account and its *prima facie* sustainability is conducted.

The rest of the paper is composed as follows: section 2 views this current account background through the lenses of the country's use of capital, the expectations regarding future output and the type of borrowing that is taking place within the country. Section 3 reviews the literature on current account sustainability. Section 4 briefly outlines the theoretical background. Section 5 contains the econometric analysis and Section 6 concludes.

## 2 Background

The sustainability of current account deficits depends heavily on the way that borrowed capital is used within a country. Capital used to finance unprofitable and short-lived projects can render a current account deficit less sustainable as the country's ability to provide a return on the funds – whether debt or equity – is not enhanced by such investment. If, however, borrowed capital is invested in projects that promote long-term and sustainable growth in economic activity, the current account deficit is deemed to be more sustainable than in the former situation. Higher output is likely to come about in this instance and the country will find itself in a position to honour its external obligations.

On initial examination, South Africa appears less likely to err on the side of unprofitable investments. Evidence of this can be found in the R370 billion set aside for public infrastructure spending and the increased amounts of funding going to education and skills development under the Asgi-SA framework.

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<sup>4</sup>Wickens and Uctum 1993).

This suggests that capital has been put to good use within this macroeconomic policy. In addition to this, the 2010 national budget saw planned infrastructure spending ramp up to R846 billion for the subsequent three years, as the government recognised the need for the continued expansion of the country's growth capacity.<sup>5</sup>

It is not only the real productivity of investments that impacts the sustainability of the current account deficits. The expected productivity plays an equally important role. Foreign participants can withdraw funding with impressive speed if there are doubts about the country's ability to repay the borrowed capital or if it has too many incentives not to. The Debt Crisis of the 1980s and the Asian Financial Crisis stand as unpleasant reminders of international capital market volatility.

Perceptions regarding the future output of a country and its solvency are not easily measured, but what can be seen in the South African case are predominantly positive expectations. The above-mentioned inflows in foreign capital are a sign that investors feel the country is in a position to return capital in the future. Manuel (2009) noted that South Africa has had very little difficulty in financing its current account deficit by means of portfolio inflows into the equity and bond markets. Furthermore, a pleasant macroeconomic picture has been painted for the country over the last decade. Draper and Freytag (2008) argue that this picture has manifested itself in the form of decreasing foreign debt, sound fiscal policy and governance measures above those of neighbouring states - all supporting the premise that steady output growth is likely to continue in years to come. A rocky 2008 stands as an outlier in which somewhat fearful foreign participants withdrew large amounts of capital from the country – mainly in the form of portfolio equity. However, the first quarter of 2009 saw much of this begin to return. In general, it can be stated that South Africa is expected - along with other emerging-market economies - to make a return to the growth path it has maintained in recent years.

Finally, the type of borrowing upon which a country draws can have a significant impact on the sustainability of its current account deficits. The composition of a country's liabilities – whether debt or equity – and the maturity structure of the obligations, can have a significant impact on the security of its net external position. Following the estimation of the net foreign asset positions of 67 industrial and developing countries contained in Lane and Milesi-Ferretti (2001), this paper updates South Africa's net external position by way of the following equation

$$NFA_t = FDIA_t + EQA_t + DEBTA_t + FX_t - FDIL_t - EQL_t - DEBTL_t$$

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<sup>5</sup>National Treasury (2010).

where  $FDIA(L)$ ,  $EQA(L)$  and  $DEBTA(L)$  are the stocks of direct investment, portfolio equity and debt assets (liabilities) respectively.<sup>6</sup>  $FX$  represents total reserves minus gold.

South Africa's net foreign asset position has been deteriorating with the persistent current account deficit since 2003. What can be deduced from this position is that South Africa has seen its share of debt liabilities shrink significantly with equity inflows taking centre stage in the current account. The most apparent reasons for this are that foreign investors moved away from debt assets in favour of equity instruments and that the South African government – more notably – had been successful in reducing its foreign debt obligations. The sizeable inflows in both portfolio equity and foreign direct investment (FDI) sent the equity share of South Africa's liabilities to around 80% of total foreign liabilities.<sup>7</sup> What is of concern within this is that portfolio equity inflows are beginning to outstrip those of FDI and may well constitute the majority of South Africa's foreign liabilities in the near future. Portfolio investment, being short-term in its nature, is considered more volatile than FDI, which has implications for the sustainability of deficits financed by such funding.

In terms of the maturity structure of South Africa's public debt, the Consolidated Financial Information for the year ended 31 March 2008 reported current public borrowing comprising 95% domestic short-term borrowing with the remaining 5% being foreign. Non-current borrowing on the other hand consisted of 81% domestic borrowing, with foreign borrowing making up the remaining 19%. The picture for 2009/2010 was similar, with foreign debt comprising only 15.6% of total public debt.<sup>8</sup> This leads one to believe that South African public debt is in a relatively safe space in terms of external debt security. Furthermore, the National Treasury reported the redemption profiles of both current and non-current stocks of debt, which show little concern about the sustainability of the debt.

From the perspective of the type of public and private borrowing that South Africa has taken on, debt liabilities imply little cause for alarm for the current account. The concern is rather that this secure debt position represents only a minor proportion of foreign liabilities, and that the growing and more volatile portfolio liabilities bring the sustainability of the current account deficits into question, especially given international experiences in this regard. Despite this being said, large capital inflows are not to be seen

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<sup>6</sup>Data for this estimation were taken from South Africa's International Investment Position (IIP) reported in the IMF's International Financial Statistics.

<sup>7</sup>Equity share is defined in Lane and Milesi-Ferretti (2007) as portfolio equity liabilities and FDI liabilities over total foreign liabilities.

<sup>8</sup>National Treasury (2009).

in a purely negative light – and neither are current account deficits. When they are of a manageable size, current account deficits are a positive reflection of a country’s ability to attract foreign capital without raising concerns of over-indebtedness.

Recent trends in South Africa’s current account deficit, and in its funding, suggest that the country has placed foreign capital in sensible places that offer attractive returns. Expectations with regard to the country’s future and its ability to match the desired returns have dipped in the wake of the global financial crisis; these expectations are now bouncing back. However, unease may arise owing to the level and composition of foreign capital flows to South Africa. meanwhile, despite the high deficit-to-GDP ratio, the current account deficit position has the characteristics more of a sustainable deficit than that of an unsustainable.

### 3 Literature review

In the literature on current account sustainability, there are three distinct approaches to the question of whether or not a deficit is sustainable. These include the accounting approach, the use of practical criteria and IBC testing via cointegration analysis.

The accounting approach to sustainability is best explained as an approach that analyses the debt-to-GDP ratio in determining the sustainability of the current account.<sup>9</sup> Cuddington (1997) finds that other ratios are used in answering this question, but that these tend to be less popular in the literature. This approach defines a sustainable current account as one that does not generate increases in the specified ratio over an extended period of time.

A simple sustainability condition in this approach, as derived in Opoku-Afari (2007), is stated as

$$\Delta b_t = \left[ \frac{1 + i_t}{1 + g_t} \right] b_{t-1} - (x - m)_t = 0 \quad (1)$$

where  $b_t$  is the external debt-to-GDP ratio,  $i_t$  is the interest rate,  $g_t$  is the GDP growth rate and  $(x - m)_t$  reflects the trade balance-to-GDP ratio. Equation (1) states that, in a situation of balanced trade, the change in the stock of external debt is determined by the discrepancy between  $i_t$  and  $g_t$ . With an unchanging stock of debt, the external debt-to-GDP ratio remains constant and the trade balance and current account are sustainable. In the real world we would seldom have exact equality between  $i_t$  and  $g_t$ , so in

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<sup>9</sup>The accounting approach is also used in testing the sustainability of fiscal deficits. The same can be said for IBC testing via cointegration analysis.



a favourable situation where the interest rate is below that of GDP growth, trade deficits could continue forever without an increase in the ratio of debt to GDP.<sup>10</sup> However, the deficit is not sustainable when the economy's growth rate is below the interest rate. In this instance, trade surpluses would have to exist to offset the increase in the debt stock arising from this unfavourable discrepancy.

One apparent criticism of the accounting approach is that it makes assumptions about debt being able to grow at the rate of GDP in order to maintain a constant debt-to-GDP ratio. This does not explain the role that lenders play in deciding whether a country's external position and associated policies are sustainable. Despite this, the accounting approach remains a useful tool in determining whether a country – or government – is in danger of over-indebtedness. Trehan and Walsh (1991), for instance, employ this framework in testing intertemporal balance in the United States for the years 1946-1987. In answering the question of whether foreigners hold an unsustainably large number of U.S. assets, they test the stationarity of the change in the stock of net domestic assets held by foreigners. Unit root tests are run and the null hypothesis of nonstationarity is rejected – reflecting a sustainable current account balance for the U.S. during this period.

In a similar vein, Hamilton and Flavin (1986) make use of U.S. post war data and employ unit root tests on the U.S. government stock of debt. The present-value borrowing constraint is thus tested in a parallel fashion to the IBC test in Trehan and Walsh (1991). They conclude that the fiscal deficit is sustainable as the data are compatible with the claim that investors expect the budget to be balanced in present-value terms.

Within a holistic approach to the Ghanaian current account deficit, Opoku-Afari (2007) adopted the framework summarised above.<sup>11</sup> Following a graphical analysis in place of stationarity tests, he concludes that the accounting approach provides early evidence of current account unsustainability. This is due to the sustainability condition, in *Equation* (1), producing significantly negative values, increasing the debt-to-GDP position. In an arguably different framework to the accounting approaches contained in the above three papers, Smit (2007) determines the level of the current account that would stabilise South Africa's net foreign assets. The results of this analysis are, however, left for discussion in support of the findings of this paper.

Viewing the sustainability of deficits through the lenses of practical criteria or sustainability indicators is

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<sup>10</sup>Hamilton and Flavin (1986).

<sup>11</sup>A cointegration analysis and view of practical sustainability criteria are also undertaken in this paper.

not widely undertaken in the literature. Nevertheless, these practical criteria stand to aid one in providing a bigger picture of the sustainability of the current account as the theoretical approaches of the IBC and the accounting approach can often answer the question too narrowly. With this being said, there are many different criteria that are employed in sustainability analysis. This paper considers several of the most popular which are listed below.

A current account deficit-to-GDP ratio in excess of five percent should be viewed with concern. Opoku-Afari (2007) notes that empirical studies conducted after the Asian crisis found that the countries that were the hardest hit were those with large deficit-to-GDP ratios. One would also have to consider the source of the deficit – whether it is from lower domestic savings or higher investment, with the latter being the favoured situation.

As was shown above, increasing external debt-to-GDP ratios can be seen as a sign of unsustainability. Wickens and Uctum (1993) note that outside the accounting framework, these ratios can be used as a measure of a country's ability to service its debt. Foreign currency reserves are also used as a measure of current account sustainability as they are indicative of a country's ability to finance its imports.

The composition of the current account is also of central importance in the sense that relative proportion of net factor income, and the trade balance has implications for its sustainability. A current account deficit emanating from a trade deficit can be argued to be less sustainable than a deficit from negative factor income due to the fact that a trade deficit – if it is persistent – may be illuminating of structural competitiveness problems. On the other hand, if capital inflows form a large part of the deficit, then the composition of those flows can have a significant impact on current account sustainability.

In addition to the sustainability indicators listed above, other studies have developed empirical models that measure the vulnerability of developing and emerging economies to external shocks such as sudden stops in capital flows and current account reversals. In this regard, Smit (2007) analyses several practical indicators which shed light on the possibility of a sudden stop in capital flows and the associated current account reversal in South Africa. As was mentioned above, the results of this investigation are left for discussion in support of the findings of this paper, as are those of Draper and Freytag (2008). Similarly, Draper and Freytag approach the question of South African current account sustainability from the perspective of a sudden stop in capital flows. In assessing the likelihood of such suddenstop, various macroeconomic variables, as well as measures of institutional quality, are considered. The composition of South Africa's imports is also given considerable focus in this paper, as the ratio by which capital/intermediate goods

outweigh consumption goods is felt to be indicative of the long-run sustainability of the current account.

Opoku-Afari (2007) employs many criteria in his analysis of the Ghanaian current account and finds the deficit to be fragile and very sensitive to donor-flow dynamics rather than trade flows, as would be the case in more developed countries.<sup>12</sup> Interestingly, he also constructs an ‘optimal’ current account for Ghana by means of Obstfeld and Rogoff’s 1995 *Intertemporal Model of Optimal Benchmark* and forecasts the optimal time path of Ghanaian current account balances. In comparison to actual current account balances, it is found that the optimal model tracks the actual current account significantly. This result of course hints at a deficit more sustainable than originally thought. Despite their usefulness in giving a fuller view of the current account, this paper does not consider the above practical criteria in any explicit detail but rather progresses to discuss the IBC approach and cointegration analysis which stands as the most popular framework in the literature.

The IBC approach views the current account as a tool domestic residents use to smooth consumption by borrowing from or lending to the rest of the world. Put very simply, the IBC approach is based on the idea of an open economy maximising its many (infinite) period utility subject to its budget constraint. That budget constraint (defined properly in the next section) has the requirement that the present or discounted value of all current account positions in the infinite future should sum to zero. Alternatively, the IBC is respected when the discounted value of foreign asset holdings by a country equals zero.

Within this approach, Ahmed and Rogers (1995) test whether long-term data from the U.S. and U.K. are consistent with government and national intertemporal budget balance. The authors apply Engle and Granger’s (1987) ADF test to several cointegration equations to assess the present value conditions (PVCs) derived in the paper. The results reported are favourable to the PVCs holding over the entire sample period. These PVCs are argued to hold even after events that cause a structural break in the short-term dynamics.

Opoku-Afari (2007) adopts a consumption smoothing approach to his cointegration analysis of Ghana’s current account. Intertemporal balance is tested via an analysis of a cointegrating relationship between net cashflow and private consumption expenditures. Using the Johansen methodology, he is able to establish a long-run relationship between these two series which provides evidence of a sustainable current account deficit despite the contradictory findings from the accounting approach.

Wickens and Uctum (1992) employ a different framework to test the sustainability of U.S. current

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<sup>12</sup>Most of these criteria have been discussed above but several others are included in his examination.

account deficits over the period 1970-1988. In essence, their national IBC is tested by means of an investigation of the stationarity of the primary (interest exclusive) current account. Initially the current account is found to be nonstationary, leading to a conclusion of IBC violation. However, a qualifier to this conclusion is made in the statement that the result depends on the assumption of the exogeneity of the trade balance as they are able to reverse their original result with relative ease.

In another study of the long-run tendency of the U.S. current account balance, Husted (1992) makes use of quarterly balance of payments data from 1967:1 to 1989:4. He tests for cointegration between exports and imports plus interest payments abroad. This is done by means of Engle and Granger's (1987) ADF test. The analysis initially shows no evidence of cointegration but cointegration of the two series is established after controlling for a structural break in 1983:4. A finding of U.S. intertemporal balance and current account sustainability is thus made. An extension of the methodology of this paper is undertaken in Wu, Fountas and Chen (1996) for both the United States and Canada. Data from 1973:4 to 1994:4 are used to test for cointegration between a measure of exports and imports of goods and services. The authors implement various unit root and cointegration tests and conclude that both U.S. and Canadian real current account-deficit-to-GDP ratios are unsustainable due to the violation of their respective external constraints.<sup>13</sup>

Despite the popularity of IBC testing in the literature, no such investigation has been carried out for the South African current account. It has been stated above that studies on the South African current account have been conducted – especially in recent years – but these have fallen primarily in the realm of the accounting approach and practical indicators of sustainability. This paper therefore seeks to make its central contribution by providing a formal analysis of the sustainability of the South African current account via a test of the South African IBC.

## 4 Theoretical background

The discussion in this section is based on Husted (1992). Consider a small open economy with no government and populated by an infinitely-lived representative consumer. The agent is able to trade a one-period bond on the international capital markets. The agent's *intertemporal* budget constraint can be written as

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<sup>13</sup>The finding of an unsustainable U.S. current account deficit does somewhat contradict the findings of Husted (1992).

follows

$$B_0 = \sum_{t=1}^{\infty} \mu^t TB_t + \lim_{n \rightarrow \infty} \mu^n B_n, \quad (2)$$

where  $B_0$  is the outstanding stock of bonds.  $TB_t = X_t - M_t$  represents the trade balance in period  $t$ ,  $X_t$  is exports,  $M_t$  is imports, and  $\mu = 1/(1+r)$  with  $r$  being the world interest rate.

The important element in the IBC is the last term. When  $\lim_{n \rightarrow \infty} \mu^n B_n = 0$ , the outstanding international debt equals the present value of future trade surpluses and deficits. In other words, the economy is using exactly the resources it is able to generate, and the growth in international indebtedness is *sustainable*. Failure to meet this condition will mean that the country is either getting away with a *Ponzi scheme* ( $\lim_{n \rightarrow \infty} \mu^n B_n \leq 0$ ), which foreigners are unlikely to allow, or making an unrequited gift to the rest-of-the-world ( $\lim_{n \rightarrow \infty} \mu^n B_n > 0$ ), which is Pareto-inferior consumption decision.

## 5 Econometric analysis

### 5.1 Methodology and data

Following Hakkio and Rush (1991) and Husted (1992), one can derive the following testable empirical model from *Equation (2)*

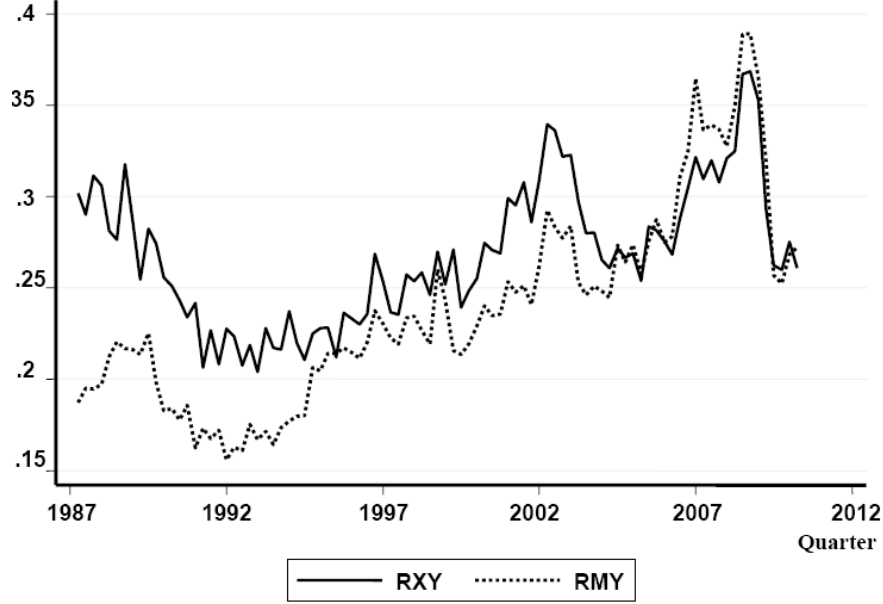
$$X_t = \alpha + \beta MM_t + e_t \quad (3)$$

where  $EX$  is exports of goods and services;  $MM$  is imports of goods and services plus interest payments (receipts) on *net* foreign debt (assets) and *net* transfer payments. Both  $EX$  and  $MM$  are measured in real terms as a proportion of GDP. From now on, they are denoted as  $RXY$  and  $RMY$ , respectively.

The methodology consists in testing for the existence of cointegrating relationships between  $RXY$  and  $RMY$ . Under the null hypothesis, the cointegrating parameter  $\beta$  should be equal to one and the error term  $e_t$  should be stationary, that is for the economy to satisfy its IBC. Values of  $\beta$  lower than one are inconsistent with sustainability. This is the case when the country has an incentive to default on its international debt as the external debt-to-GDP ratio is not finite.

The paper uses quarterly time series data from the first quarter of 1987 (1987:1) to the first quarter of 2010 (2010:1). All data for this section were taken from the IMF's International Financial Statistics (IFS). The basic data are plotted in *Figure 3*.

Figure 4:  $RXY$  and  $RMY$  over time



## 5.2 Empirical results

Table 1: Unit root tests

Levels			
$RXY$		$RMY$	
$\tau_T$	$\rho$	$\tau_T$	$\rho$
-3.03 (-3.46)	-2.93 (-3.46)	-2.59 (-3.46)	-2.87 (-3.46)
Differences			
$\Delta RXY$		$\Delta RMY$	
$\tau_T$	$\rho$	$\tau_T$	$\rho$
-11.05 (-1.94)	-11.27 (-1.94)	-8.50 (-3.46)	-8.487 (-1.94)

Note: ADF test ( $\tau$ ) and PP test ( $\rho$ ); 5% critical values are included in parenthesis.

Tests of the order of integrability of the data, in levels and in first differences, are reported in *Table 1*. These include the augmented Dickey-Fuller (ADF) test (denoted  $\tau$ ) and the Phillips-Perron (PP) test (denoted  $\rho$ ). These indicate that both  $RXY$  and  $RMY$  are nonstationary, and the null that each series is  $I(1)$  cannot be rejected.

The analysis proceeds with the cointegration tests between trade flows. The approach is to investigate whether there is any theoretical reason to support the “long-run relationship” between  $RXY$  and  $RMY$ .

Table 2: Cointegration tests

ADF test on residuals	PP test on residuals
$\tau_o$	$\tau_t$
-2.87 (-1.94)	-3.64 (-1.94)

Note: ADF test ( $\tau$ ) and PP test ( $\rho$ ); 5% critical values are included in parenthesis.

Rejecting the null hypothesis that  $\beta = 1$  (for the alternate  $\beta < 1$ ) would be evidence that the growth in international indebtedness may not be sustainable. The estimated value of the coefficient is  $\hat{\beta} = 0.551 < 1$ , from *Equation* (3). However, the residuals from the cointegration regression is stationary at the 5% level using the ADF test. A Phillips-Perron test was also run to confirm this result. Despite the fact that the residuals from the regression are stationary, the coefficient is far enough from unity to conclude that South Africa has not been respecting its IBC. More explicitly, the above results suggest that the deficits in South Africa's current account since 1987 are not sustainable.

A potential explanation for this negative result is the presence of structural breaks. From *Figure* 3, it is suspected that a structural break had occurred around 1994, which is in line with institutional shift that took place in the country around that time. To test this, a dummy variable alternative to the Chow test was employed which placed the break date at 1994:1. Furthermore, a second break was hypothesized around 2003, which is when the first current account deficit were recorded. The year 2003 saw a rapid acceleration of FDI and portfolio inflows and thus a more rapid deterioration of South Africa's net foreign asset position. The change in the composition of capital flows started in 2001, following the September 11 attacks in the USA. A highly significant break was found at 2003:2, even after controlling for the 1994:1 break.

After controlling for both breaks in the cointegration equation, the model takes the form

$$X_t = \alpha + \beta MM_t + \gamma_1 D_1 + \gamma_2 D_2 + e_t \quad (4)$$

where  $D_1$  is dummy variable that takes the value of 1 in 1994:1 and thereafter; and  $D_2$  is dummy variable that takes the value of 1 in 2003:2 and thereafter. A value of 0.911 was obtained for the  $\beta$  coefficient, which is not statistically different than one.<sup>14</sup> In addition, the residuals from the regression turn out to be stationary (see *Table* 3). Hence, the null of no cointegration or rather unsustainability could be strongly rejected.

<sup>14</sup>Husted (1992) obtains a similar coefficient of 0.96 for the United States after controlling for a structural break in 1983:4.

Table 3: Cointegration tests with structural breaks

ADF test on residuals	PP test on residuals
$\tau_o$	$\tau_T$
-3.49 (-1.94)	-5.08 (-1.94)

Note: ADF test ( $\tau$ ) and PP test ( $\rho$ ); 5% critical values are included in parenthesis.

Therefore, the behaviour of South Africa’s current account over the past 23 years is consistent with the intertemporal budget constraint. Controlling for the structural breaks at 1994:1 and 2003:2 in the cointegration equation – an arguably more realistic test – gives rise to the conclusion that South Africa’s current account deficits are in fact sustainable. With this considered, this paper moves to discuss several additional sustainability indicators. These indicators – contained in Smit (2007) and Draper and Freytag (2008) – provide support for the above conclusion.

### 5.3 Robustness

It was stated in section 3 that the use of practical criteria is not widely undertaken in the literature on current account sustainability. The contribution of two recent papers, however, allows one to tell the story for the South African current account in fuller measure than would be told by the above econometric exercise on its own. Smit (2007) and Draper and Freytag (2008) consider the country’s deficit from a less formal position than this paper but the additional avenues explored may render a reader more convinced regarding the above conclusion of sustainable South African current account deficit.

Smit (2007) advances on the question of sustainability from several angles which include an analysis of sustainability in terms of solvability, the likelihood of a current account reversal and the factors that influence the severity of the macroeconomic impact of a reversal.<sup>15</sup> He further simulates the impact of a sudden stop in foreign capital inflows and the associated reversal of the current account for several macroeconomic variables.

In the analysis of solvability, Smit (2007) determines the level of the current account balance that would stabilise South Africa’s net foreign asset position. This is done for inflation rates of 4.5% and 6%. The paper concludes that the sustainable current account levels produced in the analysis are significantly exceeded by South Africa’s actual and expected medium-term deficits.

<sup>15</sup>Edwards (2003) defines a reversal as a reduction in the current account deficit of at least 3% of GDP in a one year period but some studies define it as a larger reversal.



The above result, hinting at an unsustainable current account balance, is then contradicted by the conclusion made in Frankel, Smit and Sturzenegger (2007) and listed in Smit (2007), which points to a low probability of a current account reversal. These also suggest that the impact of a reversal – if it were to occur – would be limited. In this regard, they argue that despite South Africa’s large current account deficit by emerging-market standards, foreign debt levels are low, a substantial portion of this debt is Rand-denominated, the economy is moderately open and the exchange rate is flexible.<sup>16</sup> In addition to this, it is argued that the country’s sound fiscal position and increased foreign reserves should limit the likelihood of large-scale capital outflows and leave the economy more resilient to the impact of a reversal.

In a similar vein to Smit (2007), Draper and Freytag (2008) find little possibility of a sudden stop in capital flows, based on an assessment of the factors on which such an event is contingent. They find that South Africa’s use of capital inflows point toward a sustainable current account deficit as investment promises to generate returns in the form of higher future output. This is consistent with what was stated earlier in this paper. They further analyse the composition of South Africa’s trade flows and argue in favour of a sustainable current account as capital and intermediate goods have heavily outweighed consumption goods in the country’s imports since 1994. Such an import structure signifies that the capital inflows drawn on to finance the trade deficit have been used for investment rather than consumption.

## 6 Conclusion

In conclusion, this paper has shown there to be overwhelming support for the thesis of a sustainable South African current account deficits. A discussion of the background of the current account has revealed that South Africa has made wise use of both domestic and foreign capital. In addition to this, expectations regarding its future output and solvency are positive. The central contribution of this paper – the formal IBC testing – has also shown that a conclusion of current account sustainability can be made. However, this is only the case when allowance is made for structural breaks at 1994:1 and 2003:2 in the cointegration equation. Despite the finding of a secure external position, a qualifier must be included in the statement that the recent growth in portfolio inflows relative to FDI is a concern. The volatility of this type of investment has had severe macroeconomic consequences for several emerging-market countries in the past.

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<sup>16</sup>In general, the less dollarized a country’s debt, the lower the impact of a large-scale depreciation of the currency. It has also been shown that the more open the economy and the more flexible the exchange rate, the smaller the cost of a reversal.

South Africa must be vigilant in maintaining a stable macroeconomic and political environment in order to prop up investor confidence. This aside, South Africa appears to be in little danger of a sudden stop and current account reversal given the findings of Smit (2007) and Draper and Freytag (2008). With all things considered, this paper regards South Africa's external behaviour as consistent with intertemporal balance and concludes in favour of sustainable current account deficits.

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